STAFF REPORT

ADMINISTRATIVE CIVIL LIABILITY ORDER
FOR
CITY OF TRACY
WASTEWATER TREATMENT PLANT
SAN JOAQUIN COUNTY

Introduction
The City of Tracy (hereafter Discharger) owns and operates the Tracy Wastewater Treatment Plant (WWTP), which provides sewerage services to the City of Tracy. Secondary treated municipal wastewater is discharged to Old River, a water of the United States, and part of the Sacramento-San Joaquin Delta. On 3 May 1996 the Regional Board adopted Waste Discharge Requirements (WDR) Order No. 96-104 (NPDES No. CA0079154) prescribing waste discharge requirements for the City of Tracy WWTP.

The WWTP consists of raw influent bar screening, primary sedimentation, biofiltration, conventional activated sludge, and secondary sedimentation. Secondary effluent is disinfected by chlorination and dechlorinated prior to discharge to Old River. The permitted average dry weather flow is 9.0 million gallons per day.

On 21 October 2003, the WWTP experienced a dechlorination system failure resulting in the discharge of highly chlorinated effluent to Old River in violation of Order No. 96-104. On 5 January 2005, the Executive Officer issued Administrative Civil Liability Complaint (ACLC) No. R5-2005-0500 to the Discharger proposing a $120,000 Administrative Civil Liability pursuant to CWC section 13385. On 24 January 2005, the Discharger waived its right to a hearing within 90-days in order to engage in settlement discussions. After unsuccessful settlement negotiations, the Discharger submitted a letter on 6 May 2005 requesting a hearing and indicated its intention to propose a supplemental environmental project (SEP).

Chlorine Release
At approximately 1830 hours, the WWTP experienced a dechlorination system failure. The failure went undetected until the on-duty operator discovered the failure at 2005 hours. This resulted in the discharge of chlorinated effluent to Old River. The WWTP utilizes sulfur dioxide (SO_2) gas to dechlorinate the wastewater. The Discharger determined that one of the two SO_2 gas leak detector sensors went into a fault mode, causing the main SO_2 gas feed valve to close. The WWTP audible alarm system was not configured to sound an audible alarm unless there was an actual SO_2 gas leak. Therefore, the SO_2 feed system failure went undetected for approximately 95 minutes. After discovery of the SO_2 feed system malfunction, the on-duty operator immediately restored SO_2 flow to the plant effluent. The Discharger reported the failure caused the discharge of approximately 585,000 gallons of wastewater with an average total residual chlorine concentration of 6.7 mg/L.

Violations
The Discharger failed to maintain adequate controls and redundancy to prevent the release of chlorinated effluent. Furthermore, the Discharger did not maintain adequate standard operating procedures and emergency/contingency plans for responding to the large release of chlorine. This resulted in the Discharger failing to adequately assess the nature and impact of the chlorine

release on the receiving water and failing to provide timely notification to state and local officials. The Discharger's acts or failures to act violated WDR Order No. 96-104 and the Water Code as described below:

- The discharge violated Effluent Limitations B.1, which includes a daily maximum effluent limitation for chlorine residual of 0.1 mg/L. The Discharger reported the discharge contained a chlorine residual of 6.7 mg/L.

- The discharge violated Receiving Water Limitations E.4, which states, "the discharge shall not cause concentrations of any materials in the receiving waters which are deleterious to human, aquatic, or plant life". The USEPA National Ambient Water Quality Criteria to prevent acute (lethal) effects from chlorine is 0.019 mg/l, on a 1-hour average. The effluent had a concentration more than three hundred fifty (350) times the acute criterion. The discharge likely caused the receiving water to greatly exceed the acute criterion at the outfall, and potentially a considerable distance downstream, because given the concentration of the effluent, it could not have mixed with the receiving water quickly enough to be diluted below the acute criterion.

- The Discharger violated Standard Provisions A.17, which states, "The discharger shall take all reasonable steps to minimize any adverse effects to waters of the State or users of those waters resulting from any discharge or sludge use or disposal in violation of this Order. Reasonable steps shall include such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge or sludge use or disposal." The Discharger failed to properly document the nature and impact of the chlorine release.

- The discharge violated Provisions F.1 and Standard Provisions A.22, which require that neither the discharge nor its treatment shall create a nuisance or pollution as defined in California Water Code (CWC) section 13050. The discharge of highly chlorinated effluent unreasonably affects the receiving water for the designated beneficial use of freshwater aquatic habitat, thus creates a condition of pollution.

- The Discharger violated CWC section 13271 for failing to immediately notify the California State Office of Emergency Services (OES) of the discharge of chlorine, which is a hazardous substance. CWC section 13271(a) (1) requires, "…any person who, without regard to intent or negligence, causes or permits any hazardous substance or sewage to be discharged in or on any waters of the state…shall, as soon as (1) that person has knowledge of the discharge, (2) notification is possible, and (3) notification can be provided without substantially impeding cleanup or other emergency measures, immediately notify the Office of Emergency Services of the discharge…" The California Code of Regulations requires that releases of chlorine exceeding 10 lbs shall be reported to OES. The Discharger released approximately 33 lbs of chlorine due to the SO_2 feed system failure. The Discharger waited 19 hours after discovering the SO_2 failure to contact OES and only did so after being ordered by Regional Board staff.

Determination of Liability

The violation of Effluent Limitations B.1, for chlorine residual, is subject to mandatory minimum penalties pursuant to CWC section 13385(h). However, due to the severity of the violation, the Executive Officer issued a complaint that assessed a more substantial liability for the chlorine release considering State Water Resources Control Board Water Quality Enforcement Policy and the factors in CWC section 13385(e). The proposed Order would assess the same substantial liability as that contained in the complaint.

In determining the amount of civil liability, the Regional Board must take into account nature, circumstances, extent, and gravity of the violation or violations, whether the discharge is susceptible to cleanup or abatement, the degree of toxicity of the discharge, and, with respect to the violator, the ability to pay, the effect on its ability to continue its business, any voluntary cleanup efforts undertaken, any prior history of violations, the degree of culpability, economic benefit or savings resulting from the violation, and other matters that justice may require. At a minimum, liability shall be assessed at a level that recovers the economic benefits derived from the acts that constitute the violation. These factors were considered as follows:

Nature of violation: The SO_2 feed system failed, allowing approximately 585,000 gallons of highly chlorinated effluent to be discharged to Old River, which is acutely toxic to aquatic organisms. The magnitude of the release could have been significantly reduced or avoided if the WWTP utilized adequate controls and redundancy to prevent the release of chlorinated effluent. Other violations resulted from failing to provide proper notification of the discharge or monitoring of the impacts.

Circumstances: The circumstances are such that the on-duty operator and WWTP management were not prepared to properly respond to the release of highly chlorinated effluent. The Discharger failed to adequately assess the impacts of the discharge on the receiving water. The Discharger only performed routine weekly receiving water monitoring, as required by its NPDES permit, the day after the release. The Discharger did not perform additional monitoring required to assess the impacts of a large chlorine release. The Discharger did not monitor for chlorine residual and only conducted routine monitoring at the required receiving water monitoring stations, which are located 500 feet upstream, 500 feet downstream, and 5000 feet downstream. Furthermore, the on-duty operator and WWTP management failed to properly notify OES and local officials of the hazardous substance release. The WWTP Operations Supervisor admitted that the Discharger's Emergency Action Plan did not identify chlorinated effluent as a hazardous substance and that the on-duty operator acted in accordance with his training.

Gravity: The receiving water is significantly impaired. Old River and the Sacramento-San Joaquin Delta are listed as impaired under section 303(d) of the federal Clean Water Act and identified as "Toxic Hot Spots," pursuant to the Bay Protection and Toxic Hot Spot Cleanup Program. The large release of chlorine, at levels that would be acutely toxic to aquatic life, is likely to have caused significant adverse impacts on the receiving water.

Toxicity/Extent: Chlorine is acutely toxic to aquatic life. The USEPA National Ambient Water Quality Criteria to prevent acute (lethal) effects from chlorine is 0.019 mg/L, on a 1-hour average. The effluent had a concentration more than three hundred fifty (350) times the acute criterion, and was discharged for approximately 95 minutes. The discharge must have caused the receiving water to greatly exceed the acute criterion at the outfall, and potentially a considerable distance downstream, because given the concentration of the effluent, it could not have mixed with the receiving water quickly enough to be diluted below the acute criterion.

Susceptibility of the discharge to cleanup/Voluntary cleanup efforts: The effect of highly chlorinated effluent on the receiving water is predominantly acute toxicity to aquatic organisms. This type of discharge is not susceptible to clean up by the Discharger, however it could have been prevented or minimized with proper operation of the facility.

Degree of culpability: The release of chlorinated effluent was an accidental release. The on-duty operator immediately corrected the problem after discovery of the malfunctioning SO_2 feed system. However, the Discharger is culpable for not having adequate controls or redundancy to minimize or avoid chlorine releases, for not adequately training wastewater operators to properly respond to failures of this nature, and for not maintaining sufficient preventive plans and emergency response procedures.

Chlorine is acutely toxic to aquatic life at very low concentrations. Its use as a disinfectant at wastewater treatment facilities requires doses several hundred times the acute (lethal) concentration. Therefore, facilities using chlorine disinfection must include adequate controls, alarms, and redundancy to prevent the accidental release to the receiving water. The WWTP does not include in-line SO_2 monitoring and does not include adequate controls and alarms to prevent the accidental release of chlorine.

The Discharger's Emergency Action Plan did not identify the discharge of highly chlorinated effluent as a hazardous substance needing to be reported to OES. Therefore, the Discharger waited 19 hours to notify OES, and did so only after being ordered by Regional Board staff. In light of the incident, the Discharger issued an internal memorandum to all Utility Division personnel to correct this problem.

Degree of Cooperation/Conduct: The Discharger determined that one of the two SO_2 gas leak detector sensors went into a fault mode, causing the main SO_2 gas feed valve to close. The audible alarm system was not configured to sound an audible alarm unless there was an actual SO_2 gas leak. The Discharger has made necessary modifications to the system to correct this problem. In response to a Notice of Violation and CWC section 13267 Order, the Discharger also committed to review and update existing standard operating procedures and emergency response procedures by 1 November 2004, including development of preventive and contingency plans and training of personnel with assistance from a contracted Health and Safety professional. The Discharger submitted standard operating procedures regarding NPDES permit violations on 20 June 2005 and submitted an updated Emergency Action Plan on 1 July 2005. However, the Discharger has not met its commitment to provide preventive and contingency plans and has not

provided documentation demonstrating completion of WWTP personnel training.

Prior history of violations: The Discharger does not have a history of chlorine residual violations. Overall, the Discharger has a relatively good record, with mostly minor violations.

Ability to Pay: The Discharger has not stated nor demonstrated an inability to pay or continue in business if required to remit the liability.

Economic Benefit: The Discharger derived an economic benefit estimated to be not less than $10,000 for not including necessary alarms and redundant systems to prevent or minimize the release of chlorinated effluent. The plant alarm system was not configured correctly and allowed the main SO_2 gas feed valve to close without sounding an audible alarm. The Discharger promptly made necessary wiring connections to the plant alarm system to correct this problem. The cost of the repairs are not known, but were likely minimal. This modification would have likely minimized the chlorine release. However, additional controls and redundancy are warranted and should have been in place to prevent the discharge of chlorine. At minimum, the dechlorination system should have in-line SO_2 monitoring and SO_2 feed system redundancy to safeguard the system.

Other Matters that Justice May Require: Staff costs were estimated to be $8,000, assuming the ACL was settled without significant negotiations. Estimated staff costs increased an additional $4,800 preparing for the hearing.

Statutory Maximum and Minimum Liability
CWC section 13385(c) authorizes Administrative Civil Liability not to exceed ten thousand dollars ($10,000) for each day in which the violation occurs and an additional liability not to exceed ten dollars ($10) multiplied by the number of gallons by which the volume discharged but not cleaned up exceeds 1,000 gallons. Therefore, the statutory maximum liability is $5,850,000. CWC section 13385 requires that "at a minimum, liability shall be assessed at a level that recovers the economic benefits…" As discussed above, the estimated economic benefit is $10,000.

Supplemental Environmental Project (SEP)
The Regional Board may allow the Discharger to satisfy some or all of the monetary assessment of the ACL by completing or funding one or more SEPs. SEPs are projects that enhance the beneficial uses of the waters of the State, provide a benefit to the public at large, and that, at the time they are included in an ACL action, are not otherwise required of the Discharger. SEPs must also have a nexus or relationship between the violation and the SEP. This includes a geographic link, a specific spill type or violation, and/or beneficial use protection where specific beneficial uses were affected by the violation. SEP proposals must include adequate detail to demonstrate compliance with the Enforcement Policy's criteria, including detailed scope of work, budget, and schedule.

The Discharger has proposed a SEP, which includes three education and outreach projects to be implemented by the Water Education Foundation. The proposed projects are the revision, printing, and distribution of the *Layperson's Guide to Water Pollution* (Guide), production of the *California Water Pollution Facts* booklet, which is a companion to the Guide, and presentation of two Project WET *Healthy Water, Healthy People* workshops.

The Guide would be geared towards decision-makers and be distributed to reporters, water agencies, watershed organizations, cities, counties and members of the public, introducing readers to the problems associated with water pollution and possible solutions. The *California Water Pollution Facts* booklet would be based on materials included in the Guide and designed for distribution to schools, county fairs, and customer mailings. Both English and Spanish versions of the booklet would be produced. The Project WET *Healthy Water, Healthy People* workshops would be presented to twenty educators per workshop. In addition, two hundred copies of the No-Know board game and one thousand Preventing Pollution slide cards would be provided. The total budget for the SEP was proposed to be variable from $20,000 up to $80,000, depending on the final amount of the liability.

The SEP proposals generally meet the Enforcement Policy criteria. However, since the Discharger is contesting the amount of the liability, there is not a firm amount to base approval of a SEP. Therefore, at this time, staff does not recommend approval of the SEP. Details regarding the SEP have been provided with the tentative Order for public comment and possible discussion and/or approval at the hearing.

Response to Comments

The Discharger submitted comments regarding the proposed tentative ACL Order on 15 June 2005. The Regional Board is not required to provide a formal response to comments for ACL Orders. However, to provide clarification, below are some of the Discharger's comments with responses by Regional Board staff.

1. The Discharger properly notified the Regional Board and the Office of Emergency Services (OES) within 24 hours as required by Standard Provisions B.1.

   RESPONSE – The Discharger did meet the requirement of the Standard Provisions by reporting the chlorine release to the Regional Board within 24 hours. However, waiting 17 hours after the incident to notify the Regional Board demonstrates the Discharger's lack of urgency surrounding the serious release of chlorine. With regards to notifying OES, section 13271(a) (1) of the CWC requires immediate notification. The Discharger violated this requirement. The Discharger has admitted it did not realize the need to notify OES until ordered to do so by Regional Board staff.

2. The Discharger performed additional monitoring, as required by Standard Provisions A.17, to determine the nature and impact of the chlorine release. More timely chlorine residual monitoring would not have made any difference. The Discharger argues that chlorine

would have dissipated in the 19,000-foot outfall, so it cannot be assumed the effluent contained a chlorine residual concentration of 6.7 mg/L; it was probably lower. In addition, the Discharger used finding 16, from WDR Order No. 96-104, to argue that the discharge comprises only 1% of the river. Therefore, the discharge must have rapidly diluted in the receiving water resulting in no environmental impact.

RESPONSE: The Discharger performed routine weekly monitoring the following day (13 hours after the incident), only monitoring the receiving water at the locations and for the constituents required in its Monitoring and Reporting Program. The Discharger did not analyze the receiving water for chlorine residual. After being ordered by Regional Board staff, the Discharge made a second trip to the receiving water and monitored for chlorine residual. Additional monitoring in the vicinity of the discharge, including chlorine residual monitoring, was warranted and required.

The Discharger attempts to excuse the lack of timely chlorine residual monitoring by claiming that it would not have made any difference, since the chlorine would have dissipated in the outfall and would have been diluted in Old River. This is not an adequate excuse for not adequately assessing the nature and impact of the discharge. It is Regional Board staff's assertion that the Discharger should have conducted timely monitoring of the receiving water in order to assess the impacts of the large release of chlorine. Due to the lack of monitoring, the exact severity and extent of the release is unknown. The Discharger did nothing to prove there were no adverse environmental impacts.

The Discharger's argument regarding available dilution is misplaced. WDR Order No. 96-104, finding 16, specifically states, "The modeling demonstrates that during low flow periods of Old River approximately 1.0% of its flow consists of the wastewater from the Discharger on a monthly average. Delta pumping and tidal cycles may, however, result in less dilution for short periods of time." (emphasis added) Chlorine is a fast acting, acute toxicant. The monthly average dilution has no basis in the dilution of acute toxicants that act on a 1-hour average. The acute diluting capacity of Old River is minimal at best. The Discharger's Report of Waste Discharge, submitted 3 February 2003, reported an acute critical low flow of 0 cfs, which means no acute dilution is available. Furthermore, all temporary South Delta barriers were in place at the time of the incident, which greatly reduces Old River flow in the vicinity of the discharge from that contemplated in Order No. 96-104.

3. The incident experienced by the City was an "upset", the City has established an affirmative defense against liability for the incident, and no penalty can be assessed for this upset condition.

RESPONSE: The principal reason for a proposed assessment larger than the mandatory minimum, required by CWC section 13385(h), is based on the Discharger's response, or failure to respond, after the incident, as discussed in the Determination of Liability section

above. Furthermore, the "upset" condition could have been minimized or eliminated with adequate controls and redundancy.

4. The Regional Board has not provided evidence that Receiving Water Limitation E.4 has been violated. E.4 states, "The discharge shall not cause concentrations of any materials in the receiving water which are deleterious to human, animal, aquatic or plant life." In addition, Provision F.1 has not been violated, because the record contains no evidence that the discharge created a condition of pollution.

   RESPONSE: The discharge of highly chlorinated effluent unreasonably affects the receiving water for the designated beneficial use of freshwater aquatic habitat, thus creating a condition of pollution. The discharge contained chlorine residual at a concentration more than 350 times the acute aquatic life criterion. The discharge could not have diluted quickly enough to reduce the concentration of chlorine residual below the criterion. Therefore, the discharge likely caused toxicity in the vicinity of discharge, but the degree of toxicity is unknown. The specific reason the Regional Board does not have physical evidence to prove the discharge was deleterious to aquatic life is due to the Discharger's inadequate assessment of the nature and impact of the discharge. No monitoring is not proof that there were not deleterious effects to aquatic life. The Discharger claims that adverse effects, such as fish kills, would have been evident when it inspected the receiving water the following morning, 13 hours after the incident. However, fish and other scavengers quickly consume dead fish resulting from a fish kill. Therefore, no obvious visual evidence, 13 hours after the incident, is not proof that the discharge was not deleterious to aquatic life.

5. The tentative ACL Order's penalty is substantially higher than Orders issued for similar incidents and, thus, fails to provide equal protection under the law.

   RESPONSE: The Discharger has complained that this liability assessment is much higher than that imposed on some other Dischargers for chlorine residual effluent violations. They are correct that the Regional Board has assessed different liabilities for similar violations. The amount of liability imposed is a case-by-case consideration, and takes into account the statutory factors and the application of mandatory penalties.

Summary

The Discharger's failure to maintain adequate controls and redundancy in the chlorination/dechlorination system resulted in the discharge of highly chlorinated wastewater to Old River. The extent of the environmental impacts is unknown due to the Discharger's failure to adequately evaluate the impact of the discharge on the receiving water. The Discharger also failed to adequately train its wastewater operators to properly respond to failures of this nature and failed to maintain sufficient preventive plans and emergency response procedures. For these reasons staff recommends the Regional Board approve a more substantial liability than the mandatory minimum penalty required under CWC section 13385(h).

Based on the State Water Resources Control Board Water Quality Enforcement Policy and CWC section 13385(e), staff recommends the Regional Board adopt the proposed ACL Order with a liability of $120,000.